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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,830	04/27/2001	Timothy Fries	355-A	3332

7590 11/21/2002  
CIENA Corporation  
Legal Department  
1201 Winterson Road  
Linthicum, MD 21090

EXAMINER

BELLO, AGUSTIN

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 11/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/844,830	<b>Applicant(s)</b> FRIES ET AL.	
	<b>Examiner</b> Agustin Bello	<b>Art Unit</b> 2633	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 September 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,7,8 and 10-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,8 and 10-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>8, 6</u> | 6) <input type="checkbox"/> Other:  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7-8, and 10-28 rejected under 35 U.S.C. 103(a) as being unpatentable over Way (U.S. Patent No. 6,366,728).

Regarding Claims 1 and 16, Way teaches a dispersion compensation module for compensating for dispersion in an optical communications network transmitting signals on multiple wavelengths, the dispersion compensation module comprising: a first dispersion compensating fiber providing dispersion compensation and dispersion slope compensation, said first dispersion compensating fiber having a first non-zero dispersion coefficient and a first non-zero dispersion slope coefficient (see table 1); a second dispersion compensating fiber in optical communication with said first dispersion compensating fiber (column 8 lines 48-51), said second dispersion compensating fiber having a second non-zero dispersion coefficient and a second non-zero dispersion slope coefficient (see Table 1), a length of said first dispersion compensating fiber and a length said second dispersion compensating fiber are selected to compensate dispersion and compensate dispersion slope simultaneously for the multiple wavelengths in a transmission path in optical communication with said first dispersion compensating fiber and said second dispersion compensating fiber (column 9 lines 26-31). Way differs from the claimed invention in that Way fails to specifically teach that said first dispersion compensating fiber and

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said second dispersion compensating fiber are housed in single or separate dispersion compensation modules. However, one skilled in the art would clearly have recognized that the dispersion compensation fibers of Way could have either been housed in either single modules or separate dispersion modules. Furthermore, Way teaches that the dispersion compensation fibers of the invention, although separate or discrete, could be combined or integrated with other systems, modules, techniques, or methods without departing from the scope of the invention. This disclosure by Way would have suggested to one skilled in the art that the fibers of the compensation method of Way could have been housed in either separate or single dispersion compensation modules. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have housed the dispersion compensation modules of Way in either single or separate dispersion compensation modules.

Regarding Claims 2, 3, 17 and 18, Way teaches the dispersion compensation module of claim 1 wherein the first non-zero dispersion coefficient is different from the second non-zero dispersion coefficient and wherein the first non-zero dispersion slope coefficient is different from the second non-zero dispersion slope coefficient (see Table 1).

Regarding Claims 4, 5, 19, and 20 Way teaches the dispersion compensation module of claim 1 wherein the transmission path is an inter-network element section of transmission fiber and wherein the transmission path includes a component in optical communication with the inter-network element section of transmission fiber (column 9 lines 62-67, column 10 lines 1-16, and column 16 lines 41-47).

Regarding Claims 7, 8, 21 and 22, Way teaches the dispersion compensation module of claim 1 wherein the transmission path extends between a first terminal and a second terminal to

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define a terminal-to-terminal path (see Figure 1), wherein the dispersion compensation module is coupled to the second terminal (see Figure 1), and wherein the transmission path includes a component in optical communication with the terminal-to-terminal path (column 9 lines 62-67, column 10 lines 1-16, and column 16 lines 41-47).

Regarding Claims 10 and 23, Way teaches the dispersion compensation module of claim 1 wherein the length of first dispersion compensating fiber and the length of second dispersion compensating fiber are selected based on a mathematical solution compensating dispersion in the transmission path and compensating dispersion slope in the transmission path (column 8 lines 64-67 and column 9 lines 1-49).

Regarding Claims 13 and 26, Way teaches the dispersion compensation module of claim 10 wherein the mathematical solution compensates for Nth order dispersion effects in the transmission path, where N is greater than 2 (column 17 lines 9-14, e.g. four-wave mixing), said dispersion compensation module further comprising N dispersion compensating fibers, including said first and second dispersion compensating fibers, in optical communication with each other, each of said N dispersion compensating fibers having a non-zero dispersion coefficient and a non-zero dispersion slope coefficient, wherein respective lengths of said N dispersion compensating fibers are selected to compensate 1<sup>st</sup> through Nth order dispersion effects for the multiple wavelengths in the transmission path (see rejection of claim 1, the tables of Way, and the Figures of Way).

Regarding Claims 14, 15, 27, and 28, Way teaches the dispersion compensation module of claim 10 wherein the mathematical solution includes a value representing dispersion and

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dispersion slope introduced by components in the transmission path (e.g. the fibers of the transmission path, column 9 lines 62-67, column 10 lines 1-7, and column 17 lines 21-30).

Regarding Claims 11, 12, 24, and 25, Way differs from the claimed invention in that Way fails to specifically teach the mathematical solution claimed by the applicant. However, Way teaches a similar equation in matrix form from which a mathematical solution describing the lengths of the dispersion compensation fibers can be derived (column 9 lines 1-45).

Furthermore, Way also teaches that if the entire length of the transmission cable desired is known, one skilled in the art can compute the lengths of the dispersion compensation fibers in order to reduce or eliminate the residual chromatic dispersion or the residual chromatic dispersion slope. This disclosure by Way would have suggested to one skilled in the art that a mathematical solution exists and can be calculated from which the lengths of dispersion compensation fibers needed can be obtained. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have derived the mathematical solution claimed by the applicant in view of the suggestion by Way.

### ***Response to Arguments***

3. Applicant's arguments filed 9/16/02 have been fully considered but they are not persuasive. The applicant argues that since the claims now include the limitation that the dispersion compensating fibers are contained within a single module that the instant application should be deemed patentable. However, the examiner disagrees. As clearly stated in the Way reference and cited in the previous office action, Way teaches that, "the techniques, systems, sub-systems, and methods described and illustrated in the preferred embodiment as discrete or separate may be *combined* or integrated with other systems, modules, techniques, or methods

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without departing from the scope of the present invention.” It is clear from this statement that the compensation elements taught by Way could have been combined in a single module without departing from the scope of the invention. Furthermore, the combination of dispersion compensation elements into a single discrete module is well known in the art. For example, Ishikawa, in the same field of endeavor, teaches it is well known in the art to combine a plurality of fibers, which compensate for dispersion, in to a single discrete module (Figure 40).

### *Conclusion*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (703)308-1393. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703)305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

AB

November 15, 2002

  
LESLIE PASCAL  
PRIMARY EXAMINER